CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. III DECEMBER, 1931 No. 6

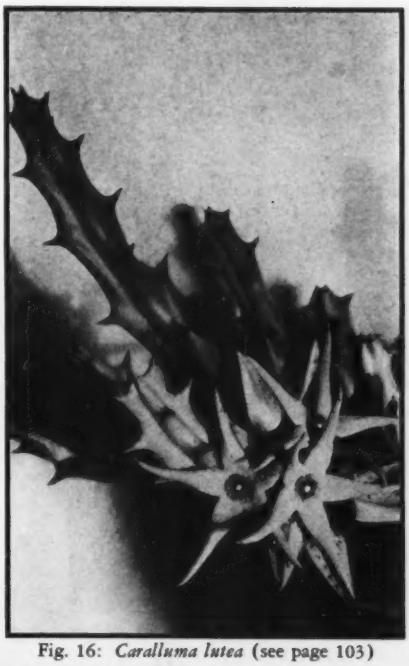


Fig. 16: *Caralluma lutea* (see page 103)

The Stapelieae, by Alain White and Boyd L. Sloane,

Price 35c

CACTUS AND SUCCULENT JOURNAL

Published and Owned by

THE CACTUS AND SUCCULENT SOCIETY OF AMERICA

A monthly magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. "The Cactaceae," by N. L. Britton and J. N. Rose, has been adopted by this journal for purposes of identification. (Membership and subscription $3.00 per year, foreign $3.00 per year.) Mail membership application aud subscription to the Secretary, Mr. W. M. Ketteringham, 610 West 65th Street, Los Angeles, Calif.

Managing Editor, SCOTT E. HASELTON, 2438 Graciosa Drive, Hollywood, Calif.

Business and Advertising Manager, G. A. FRICK, 1800 Marengo St., Los Angeles, Calif.

Vol. III DECEMBER, 1931 No. 6

CONTENTS

A LETTER

Editor Cactus Journal:

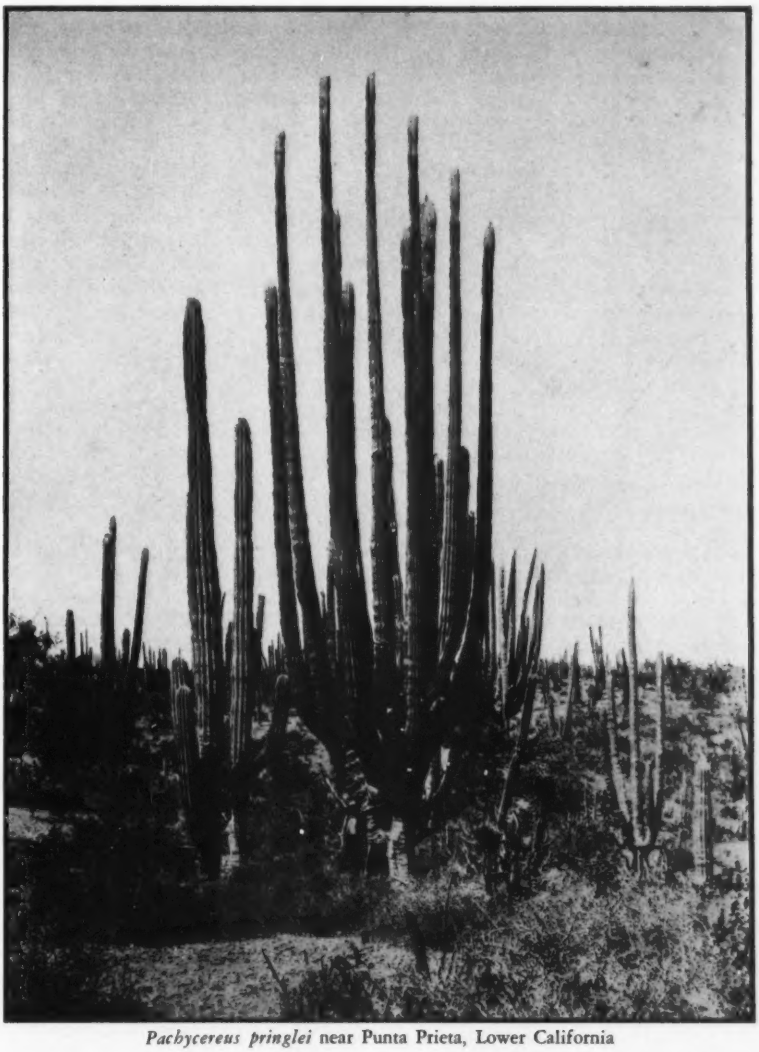
I have been very much interested in the articles on Lower California written by Mr. Gates for the Cactus and Succulent Journal as that region has been claiming my attention for several years. My first trip for collecting plant material was made into Lower California in September, 1929, and since that time I have made three additional trips varying in duration from four to ten weeks in length. Although my interest in the Flora of Lower California is not confined to the Cactaceae, that group of plants forces itself upon the attention of every traveler in Mexican territory, and I've studied the cacti encountered whenever time permitted.

Mr. Gates' enumeration of the puzzling things to be found in Lower California is far from exhaustive, as he mentioned when we met by the roadside near Rosario. They simply show some of the high points of interest about the problems met by the cactus collector in the area. One, which I think he hasn't mentioned in the Journal, concerns itself with the possibility of locating Pachycereus orcutti; another is the probable distinctness of P. titan and P. calvus. Certainly the specimens in the Cape Region and along the Pacific Coast as far north as Purisima look different from the finer specimens in the Calmalli and Punta Prieta region. Due to an unfortunate delay at San Jose del Cabo I was unable to give the attention to the cactus on the last trip that I had hoped to give, so I have nothing to add to the hunch that either P. titan or P. calvus or perhaps both may prove to be distinct if careful field study can be given them. Mr. Gates had given the subject some careful consideration and had not, in April, reached any definite conclusion about it.

By way of general interest in large specimens of any species of cactus I am submitting the enclosed short article together with a photograph of a splendid Pachycereus pringlei (S. Wats.) Britton & Rose observed near Punta Prieta.

IRA L. WIGGINS, *Curator Dudley Herbarium, Stanford University, Calif.*

A plea for American subscribers to SUCCULENTA, the society-owned magazine of the Holland Cactus Society, has been made by Miss M. C. Karsten, the secretary. The publication is printed on a good grade of paper in Dutch, well illustrated, about the size of our JOURNAL, issued monthly and now in its eighth year of existence. The price is $1.60 per year, including membership in the society. I will accept this amount up to February 1, 1932, and look after the details of your subscription, if there are any of our members that care to take advantage of this short cut into this society and at the same time help them thru a hard year.—G. A. FRICK, 1800 Marengo Street, Los Angeles.



Pachycereus pringlei near Punta Prieta, Lower California

A Giant Specimen of *Pachycereus pringlei* from Lower California

By IRA L. WIGGINS

A note by Dr. H. H. Rusby in a recent number of the Journal of the New York Botanical Garden[1] calling attention to a large Bolivian cactus prompts me to mention an impressive specimen of *Pachycereus pringlei* (S. Wats.) Britton & Rose, growing near Punta Prieta, Baja California, Mexico.

Britton & Rose[2] describe *P. pringlei* as "Tree-like, up to 11 meters high." This cactus frequently exceeds this measurement by several

[1]Journ. N. Y. Bot. Gard. 32: 193. 1931.

[2]Britton, N. L. & J. N. Rose, The Cactaceae 2: 69. 1920.

feet for we saw numerous specimens ranging from 35 to 45 feet in height. The taller specimens seem to be found in the semi-desert valleys and along washes a few miles inland from the coast in the central part of the peninsula. The finest "forests" of this cactus seen on our trip from Tia Juana to Cabo San Lucas were in the vicinity of Punta Prieta and about Calmallí. As one nears the coast the plants of this species are smaller in every respect, and do not occur on wind swept ridges, though they do approach the ocean in sheltered arroyos. In the southern part of the peninsula and toward the northern limit of this species range on the pacific side of the divide the specimens are less symmetrical, having fewer branches, and fail to attain the height reached by the "cardons," as the Mexicans call them, from near Punta Prieta to Calmallí.

We saw our finest specimen on April 16, 1931, as Professor James McMurphy and I were bound for the Cape Region collecting herbarium material for the Dudley Herbarium of Stanford University. It grows not far from the road about a mile north of the abandoned mining town of Punta Prieta. Splendid specimens of this giant cactus are plentiful along the sides of the arid ridges and in the washes of this whole region, but this particular specimen towers majestically above the "common herd."

The circumference of the trunk at the smallest place between the ground and the bases of the branches is eleven feet and one inch. It supports eighteen branches ten feet or more in length and the height of its tallest branch is, as near as we could measure it with the range-finder on the camera, about fifty-five feet. Its gigantic proportions can be judged best by comparing the figure of Professor McMurphy, in the accompanying photograph, with the towering *Pachycereus*.

The number of branches on this plant is not excessive, several specimens having been observed in the central part of the peninsula with twenty to thirty branches over three feet long. The Punta Prieta cardón is remarkable particularly for its symmetry, the great height of the main branches, and its freedom from damage by the ravages of storms, disease, or the destructive activities of termites. Thousands of fine specimens of this cactus were seen during our two month stay in Baja California, but no other plant quite matched this patriarch of the cardón forests.

One hears rumors in this region of other cardóns that are supposedly much larger, and it is not at all impossible that larger and finer specimens may exist. Mr. George Brown, for many years superintendent of the onyx quarries at El Marmol, told me, on a previous trip, of a large cardón near Calmallí said to have over sixty branches and a trunk twenty-three feet in circumference. Its estimated height was given as seventy feet, but this figure is open to some degree of doubt as no actual measurement had been made. A Mexican at Cataviñá told of a cardón which he claimed had fifty-two branches and a diameter of eight feet. He thought it was "over seventy feet high." His estimates of distances, however, were obviously inaccurate, for a palm tree which measured 67 feet was nearly a hundred feet tall, according to his guess.

After hearing of these giants of a giant species Professor McMurphy decided that our Punta Prieta specimen was quite large enough, and that if he had it in his rock garden he would soon have cactus enthusiasts from all over the United States beating a path to his door.

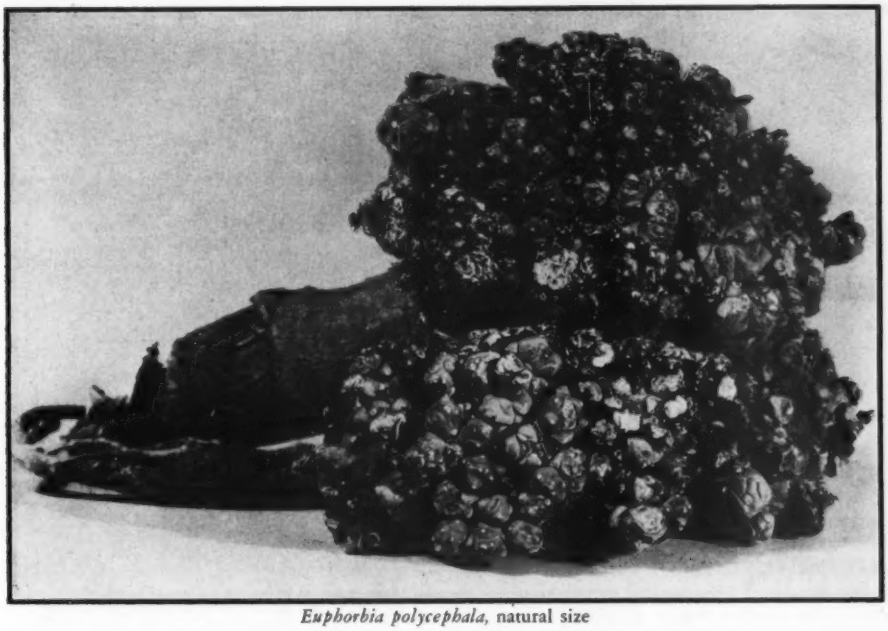
Fortunately for the welfare of the Punta Prieta *Pachycereus* the road south of Cataviñá is very discouraging to tourists, and together with the restrictions placed upon the exportation of cactus from Mexico make it impracticable for even the most ardent cactus fancier with misguided ideas to truck it away. Fortunately, too, there are few real cactus fans who would ever consider disturbing or mutilating so fine a specimen.

PRIZE ESSAY

The Editor wishes to remind our readers that Mr. Victor Reiter of San Francisco has generously offered a plant of *Calandrina grandiflora* as a prize to the contributor sending in the best reasoned essay of not over 150 words on the question of whether that plant deserves a place in a collection of succulents. The Editor has nominated as a jury to decide on the winner Mr. James West, 745 5th Avenue, San Rafael, California, and Mr. Eric Walther, 2667 McAllister Street, San Francisco, California. Essays may be sent direct to Mr. West or to Mr. Walther at these addresses. *Calandrina grandiflora* is described in Berger's "Mesembrianthemen und Portulacaceen" and may be seen in Mr. Reiter's garden.

COPY DEAD LINE

The Editor is endeavoring to schedule the CACTUS JOURNAL so that it will be mailed on a definite date each month. No copy can be considered after the 15th of the month preceding date of issue. If this is strictly adhered to, the JOURNAL will be mailed by the 15th of each month. The staff is very grateful for the generosity of its contributors and their patience before some articles are published. We only regret that we do not have more available space for that ever-increasing number of excellent articles pouring in.



Euphorbia polycephala, natural size

Euphorbia polycephala

By G. A. FRICK

The last two Euphorbias described by Dr. Marloth before his passing were *Euphorbia polycephala* and *E. wilmanae*. Both are members of the *Dactylanthes* group which now consists of eight species; all South African. The name of this group is derived from the finger-like appendages of the floral glands (*dactylos*, finger). Owing to the charming flowers and the easy cultivation and propagation by cuttings, three of the species, *E. globosa, E. ornithopus* and *E. tridentata* have been known to European botanists for more than a century. Two recent additions, both described by Dr. Rudolph Marloth in 1929 and published in the CACTUS JOURNAL, Volume I Number 10, Pages 186, 187, and 188, were introduced in the United States a year ago and are *E. susannae* and *E. pseudoglobosa.*

Having been unable to open correspondence with Miss M. Wilman of Griqualand, the discoverer of *E. wilmanae,* and in whose honor the plant was named, this article will deal with *E. polycephala* only.

E. polycephala Marl. forms a compact body of fleshy roots from which arise numerous short, closely-packed, more or less conical, fleshy twigs set into a dome shaped mass with a slightly convex surface, somewhat similar to a head of cauliflower in appearance. The surface of the plant is hardly raised above the ground level, and attains a diameter of from two to four feet.

In dry years cattle and even ostriches eagerly seek this plant, but find it difficult to secure a grip on it. Consequently, the farmers in the districts where it occurs assist by digging the plants from among the rocks, and, chopping them into small pieces, feed them to the animals. In a letter to the writer the discoverer, Mr. H. W. Shoesmith, on whose farm the plant grows, states: "I do not, and could not describe it as a delicacy, but in conjunction with cactus I am able to maintain stock during droughts; alone it appears to set up digestive disturbances." To satisfy his desire to know the food value of the plant, Mr. Shoesmith submitted specimens to the governmental analytical laboratory at Grahamstown, the original report of which is in the possession of the writer. The following are the analytical results which show it to compare favorably with many other succulent plants of the Karoo:

	LEAVES AND STEMS	ROOTS	ENTIRE PLANTS
Moisture	77.52%	77.65%	77.58%
Ash	5.79%	4.82%	5.37%
Sand	3.21%	2.55%	2.91%
Ether Extract	1.63%	1.61%	1.62%
Crude Fiber	3.32%	5.67%	4.34%
Proteins	1.07%	.70%	.91%
Carbohydrates Excluding Crude Fiber	10.67%	9.55%	10.18

Just what its actual feed value to stock is, seems to have been determined by Mr. Shoesmith, hence the addition of cactus.

The plant is extremely localized and found only in a few restricted localities; this together with its value as a stock food would no doubt cause it to become an extinct species in the not far distant future. However, plants introduced into the United States by the writer prove that they multiply very rapidly in culture.

That *E. polycephala* is destined to become popular with collectors of euphorbias is inevitable, due to the many good qualities the plant possesses. It endures months of confinement in a shipping carton without danger of rot or drying out to a state beyond restoration. The dread which importers of Euphorbias have is that the field collector in uprooting the plant will accidentally wound the roots, then pack and ship without first allowing the fresh cuts to dry and callous, resulting in the development of a fungus known to entomologists as *Coniothyrium euphorbiae* or *C. euphorbicola,* both of which are an active shipping rot fungus.

Euphorbia polycephala has shown no manifestation of this rot and seems to enjoy immunity from the Coniothyrium species, as plants received were lacerated and had broken roots. The plant's great moisture-storing structure enables it to store sufficient liquid to survive for months in a shipping case without water or contact with soil, but once placed in the ground, this plant shows new heads forming within 24 hours, an unheard-of miracle in succulent *Euphorbia* revival.

The name *Polycephala,* Greek for "many heads", fittingly describes the plant as the photograph on page 97 shows.

DESCRIPTION—Forms a compact body of fleshy roots, from which arise numerous short closely-packed, more or less conical, fleshy twigs combined into a cushion-shaped mass with slightly convex surface hardly raised above the ground level, one to two, and sometimes as much as four feet in diameter. Leaves are present only at the apex of the young growth, lanceolate-ovate, about half inch long. Cyathia solitary or in umbels, either sessile or on short peduncles. The central flower of the umbel is five-glanded. The lateral flower four-glanded as in *E. ornithopus;* the flowers are nearly one-half inch in diameter. The lobes of the involucre are tomentose, the glands horizontal, two-lipped, the upper lip square, the lower lip with three fingers just below its outer rim, as the margins are bent upwards, the green color of the upper side of the finger remains visible only at intervals, and it is at this spot that the nectar is accessible to the insect visitors.

Phyllocactus Grafted on Opuntia

This photo was taken by Mr. John Wright, of a *Phyllocactus,* grafted on *Opuntia* in summer 1930. The graft is easily seen from the top of *Opuntia* on left, the other shoots have all been made in a year's growth, and are five feet long. This is the fine pink variety. We are now grafting all our *Phyllos* on *Opuntia* as we find these Epiphytes from the tropics lose about all their roots made in summer during winter and have to begin over again in spring. The added vigor due to the push of the *Opuntia* root system is evident.

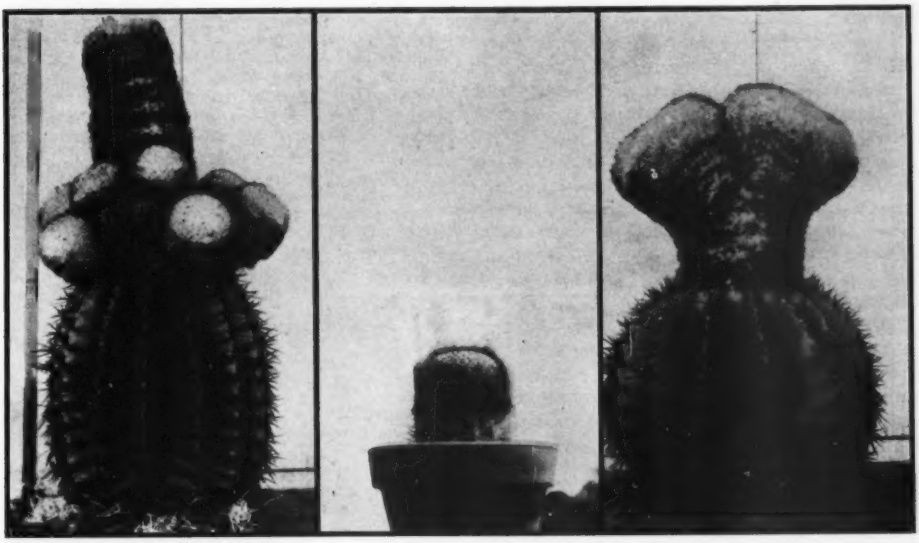
E. O. ORPET, *Santa Barbara.*

»« »«

Editor of Cactus and Succulent Journal:

A friend of mine, while in England, was wandering through the gardens and hot houses of Kew Gardens, noticed broken bricks around all the cacti, from one inch ones to many feet. The gardener told her that pieces of brick greatly improved the plants. On her return to Tasmania, she broke up bricks for her cacti and now reports that "In a very little time I noticed the green become healthier and shiny, and their growth very rapid."

MRS. J. C. MARSH,
6719 Eleventh Ave., Los Angeles, Calif.



Cactus inortus. LEFT—Monstrose form. CENTER— Head from preceding plant. RIGHT—Crested plant.

Hints on the Cultivation of *Cactus intortus*

By G. F. ANTON, *Mayaguez, P. R.*

When a cactus fancier acquires a *Cactus intortus* plant the first thought is, what kind of soil to use. Usually the first impulse would be to put it in a rock garden with hardly any soil and as little water as possible. I have seen plants placed on top of gate posts with hardly more than a pound of soil at the base of the plant, and never a thought given to them. I have heard people make the statement that "it is very hard to do anything with this type of a plant", and others reiterate with emphasis that they will not live outside of the dry desert. All these assumptions and the desire to find out for myself prompted me to investigate the native habitat of these plants and to place a number of them under observation for determining their life and behavior away from their native rocks.

The section of this island where these plants are encountered has an annual rainfall of about 25-30 inches. The part of the island where I have placed the samples for observation, 12 in all, has an annual rainfall of about 90-100 inches. The time since transplanting is now 18 months and every one of the 12 plants appear to be in perfect condition. Three of the plants were examined at the end of 18 months for root formation and were found to have a completely new set of roots of about 24 inches in length. The soil used was two parts river gravel, that happened to be available at the time of planting; one part of leaf mold brought from the same section where the plants were found, and one part of back lot soil. The leaf mold as gathered from between the rocks was very fine as though pulverized.

The plants were placed on top of the mixture so that their base was sitting firmly on the soil without any open spaces being left under the plant. They are never watered artificially but hardly a week goes by without rain, and sometimes it rains for about one hour every day for weeks at a time. This shows that they get plenty of water.

I have observed in the field that the root system of these plants is quite extensive and very near the surface, not more than two inches below. I have measured the roots of healthy specimens and found them over twenty feet in length. The soil is usually a mixture of pulverized red clay and leaf mold collected on lime stone basins by the rains. Very often orchids are found on the trunks of trees or on other cactus plants and the *C. intortus* at the base of the tree.

The *C. intortus* has a very bulky body and to some fanciers only the cephalium seems to have

any attraction. I have been experimenting with the smaller heads found on a monstrose plant. These heads appear to form the cephalium very early and therefore have a very small body in comparison. Plate No. 1 shows a monstrose plant with eleven small heads growing all around the top of the plant and all with a fair sized cephalium. When one of these heads is cut off from its plant and planted, as shown in plate No. 2, it will be found to take root in about three to four months' time. In cutting the small heads off from the plant care should be exercised not to injure them, and should be well hardened before planting. The planting consists of merely setting the plant on top of the soil and pressing down firmly to imbed its projecting base into the soil. The plant shown on plate No. 2, perhaps more pot than plant, was planted about one year ago. After three months from the time of planting it had no roots and it appeared to be living on the food stored in its small body. At six months it was examined again and was found this time to have developed roots of about two to three inches long. Since then it has not been disturbed. It is blooming regularly, and the maximum number of flowers observed at one time was five. Usually it has one flower at a time, and at the time of writing this article, September 23, 1931, it has a beautiful pink healthy looking flower exactly on the center of the cephalium. Out of nine small heads planted in this manner only one rotted. The other eight, all different sizes, seem to be doing well. The one that rotted appeared to have had too much meat left on it from its mother plant, and when this rotted it infected the small head also.

Plate 3 shows a crested plant that has been placed in captivity, so to speak, for observation.

PLANT PATENTS

The fact that the United States Patent Office now grants patents on plants may be of interest to those who are hybridizing cacti or other succulents. The first plant patent was granted August 18, 1931, to one H. F. Bosenberg of New Brunswick, New Jersey, and covers a climbing rosebush. In an act entitled: "An Act to Provide for Plant Patents", Public Document No. 245, 71st Congress (S4015) the Revised Statutes covering patents are amended so as to allow for the issuance of this class of patents. The full text of this act is published in The Official Gazette of the United States Patent Office, volume 395, page 1133 (June 24, 1930), and in general the criteria for patents of the usual type apply to plant patents. The portions of the act specifically dealing with plants are quoted below.

Section 4884, Revised Statutes, now reads in part, " . . . and a grant to the patentee . . . for the term of seventeen years, of exclusive right to make, use and vend the invention or discovery (including in the case of a plant patent the exclusive right to asexually reproduce the plant) . . ."

Section 4886, Revised Statutes, now reads in part: "Any person . . . who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant . . . may . . . obtain a patent therefor."

The act further provides that " . . . no variety of plant which has been introduced to the public prior to the approval of this Act shall be subject to patent." (The act was approved May 23, 1930.) Provisions are made for the cooperation of the Department of Agriculture and the Patent Office to decide questions of patentability.

ROBERT F. RUTHERFORD, Whiting, Indiana.

Preserving Cereus Flowers

I would like to pass on some interesting facts, probably well known to the experienced cactus enthusiast, but possibly welcome information to the amateur, who usually receives such a thrill with the first blossom of his night blooming Cereus.

The flower of night blooming Cereus, which normally opens but one night, closing with the morning—"Queen for a night" an admirer suggested—may be kept fully open for several days in a refrigerator. A *Cereus peruvianus* was cut at midnight when fully open and kept in an automatic refrigerator at about 44 degrees for more than 24 hours without showing the slightest fading or closing; and kept open for fully a week after that, the petals slowly turning brown, but never closing nor losing its very delicate perfume. All this while it was taken frequently from the box to show visitors.

Also, a night blooming Cereus bud, if picked in the morning previous to the night it is to open and wrapped tightly, unwrapping it well after dark, will show quite rapid movement in opening—plainly visible to the eye. It is often possible to tell in the morning if a blossom is to open that night, for, in cool weather particularly, the outer sepals begin loosening early in the day, and in some species, the drooping bud begins turning upward.

Hoping this may be of as much interest to another as it was a source of pleasure to me.

MRS. M. H. STEELE, Los Angeles.

BRITTON AND ROSE REPRINT

Vol. I., (4th Installment)

The following 8 pages are reprinted from "The Cactaceae" through the courtesy of Carnegie Institution of Washington, D. C. Vol. I was published in 1919 and is the recognized authority on Cacti. The demand for this rare volume is so great that the CACTUS JOURNAL is reprinting it to make it available to the cactus world.

NOTES ON BRITTON AND ROSE REPRINT

Edited by E. M. BAXTER

Pereskia pflanzii and *P. verticillata* were described in the ZEITSCHRIFT FUER SUKKULENKUNDE in 1923 and added by Britton and Rose to their list of *Pereskia* species in the appendix to Volume IV.

Because the descriptions here given are more complete than those in the appendix we use these in preference. The Britton and Rose descriptions will appear in their proper places.

The following were translated for Mrs. John D. Wright by Kathe Schlange, directly from the original description in German.

Pereskia Pflanzii Vaupel in Zeitschrift fuer Sukkulentenkunde L923, p. 55.

Arborescent, to 15 m. high, with stout trunk. Areoles bearing felt-like wool and short, weak white spines. Leaves oval, somewhat narrowed towards the base, succulent, to 4 cm. long, 2 cm. broad, rather densely spaced along the flowering branches. Flowers nearly 5 cm. long over all, pale pink, solitary and terminal, the ovary and the short bowl-shaped base of the calyx immersed in the stem. Ovary elongate. Perianth-segments 18, the outermost 6 broad-lanceolate, to 1.5 cm. long, 7 mm. wide at the base, thickish; the remaining 12 inner ones thinner, spatulate, to 2.5 cm. long, 0.8-1.5 cm. wide, at first acuminate, becoming more obtuse towards the center. Stamens very numerous, occupying the larger upper half of the concavity, 1.5 cm. long; anthers elongated. Style stout, 2 cm. long; stigma-lobes 5, thick, papillose, 5 mm. long. Ovules more or less reniform, with short funicle. Distribution: Bolivia, in the region of Santa Isabel, 50 km. downstream from Villa Montes in the thickets. Flowers in February. Karl Pflanz No. 6 (Type in Botanical Museum, Berlin-Dahlem).

Native name: *Amendacaru.*

..eskia verticillata Vaupel, Zeitschrift fuer Sukkulentenkunde, 1923, p. 55.

Erect, rarely above 2 m. high, with round, stout main stem and whorls of shorter lateral branches, which are in turn verticillately branched, and, as in *Araucaria excelsa,* evenly spaced along the stem. The stem bears large numbers of areoles spirally arranged, with a diameter of over 5 cm. and bearing a rounded cushion of grayish-white woolly felt and one to several very rigid, porrect, subulate spines up to 7 cm. in length. The lateral branches are cylindrical, about 1 cm. in diameter, succulent, glossy green, bearing areoles and spines, which, however, are smaller than on the main stem. Leaves fleshy, slightly convex above, lanceolate, acuminate, to 5 cm. long, 1.5 cm. wide. Flowers terminal, single, light red, about 1.5 cm. long, without hairs or bristles, very simple in structure: 4 sepals 7 mm. long; 7 spatulate petals, 17 mm. long, 8 mm. wide, numerous stamens; one stout style with 6 thick, papillose stigma-lobes. I had no opportunity to observe the ovules. Distribution: Bolivia, in the region of Laguna Santa Isabel, 50 km. downstream from Villa Montes. Flowers in February. Karl Pflanz No. 5 (Type-specimen in the Botanical Museum Berlin-Dahlem). The plant is called *Amendacaru-rai* (rai—small in distinction from *P. Pflanzii*) by the native Chiriguanos, *Oreja de Perro* (Dog's ear) by whites, and *criollos* in Spanish. It is plainly visible from afar on account of its white, really terrific armament, and is feared by the natives, the spines being hard to extract. The deciduous branch-tips take root and make new plants. In addition to the herbarium material there is in the Bot. G. a living plant whose main stem is 2.5 cm. thick, gray below, green above, and bears at the height of 35 cm. a whorl of 6 almost horizontal laterals.

California Cacti

Opuntia mojavensis-Mojave Desert Prickly Pear

By E. M. BAXTER

Opuntia mojavensis is one of our rarer cacti, both in collections and in nature. It is to be found in desert canyons of the San Gabriel Mountains where it winters under the snow. Like most of the Opuntias that grow in cold climates, it dries out and lies flat on the ground during the winter and spring months.

When summer comes some of the flat-lying stems have taken root and cannot raise themselves, so they send up joints from that position. When melting snows carry dirt and debris to cover up these procumbent stems the next year a new plant is formed. Colonies are formed, often ten feet in diameter. In most cases the outer plants are still connected under ground with the parent plant.

The joints are nearly round, sometimes longer than wide. They are light green in color and shiny, with edges often reddish. Their spines are very slender, often over two inches long, varying in color from white to dark red with white tips. Sometimes these spines stand out sharply from the edge and top of the joint, and sometimes are pressed downwards against the stem tightly. It is seldom that the areoles towards the bottom of the joint have any spines in them; the areoles around the upper edge grow them first, and often exclusively. In this respect the plant is quite similar to *Opuntia macrocentra* of Texas.

Areoles are spaced over an inch apart and are very small. They bear long bristly glochids,

tan colored, and none to four or five spines. The first spine to grow is white, ½ inch long, and sharply downward-curved. Later there may grow out one of the regular long dark red spines. The areoles grow on tuberculate elevations on the joints.

The fruit is fairly large, 1½ to 2 inches long, red, with a red pulp, and is juicy. Each seed is surrounded with a mass of the pulp, separating from others easily, quite like those of the pomegranate. The seeds are large, irregularly angled, and rough surfaced. They measure approximately 3/16 inches in diameter.

In the garden, the slenderness of the spines would be the best distinguishing character, because in a temperate climate the plant does *not* lie on the ground and assumes an upright position throughout the year. It may also be distinguished from others closely related (*Opuntia vaseyi* and *covillei*) by the very light green color and shininess of the stems, mentioned before.

In the field it is the only flat jointed Opuntia growing in typical prickly-pear manner (stems

Photo by E. M. Baxter.

Pad with fruit of *Opuntia mojavensis*—½ natural size. South fork Big Rock Creek

branching one from the top of the other) in the mouths of canyons opening onto the Mojave Desert. I have found it in Mescal Canyon, in the South Fork of Big Rock Creek, and in neighboring unnamed canyons.

The flower is yellow, opening wide. It lasts for two or three days. In its natural habitat it is fertilized (apparently) by several kinds of small insects that swarm over the whole flower. The style and stigma are pale yellow, the stamens also. When the dried flower falls from the fruit it leaves a shallow scar with a second depression in the middle containing a small broadly conical center.

Photo by E. M. Baxter.

Plant of *Opuntia mojavensis* in early Spring. The plant has just emerged from beneath the snow and shows the dried-out condition that it assumes to avoid the danger of damage by freezing.

OPUNTIA MOJAVENSIS, Engelmann, Proc. Amer. Acad. 3: 293. 1856.

Naturally prostrate, in cultivation suberect; joints orbicular to elliptical, light green, shiny, sometimes edged with reddish. Areoles 1 to 1½ inches (2.5-3.5 cm.) apart, bearing tan colored bristles and glochids; none to five spines, first one ½ inch (1 to 1.5 cm.) long, white, deflexed; upper and marginal areoles later bearing one to occasionally three, acicular spines, white to dark red with white tip, 1 to 2 inches (2.5-5 cm.) long, porrect or depressed, lower half occasionally annulate. Fruit pyriform, truncate, red, pulp red, agreeable to taste; seeds imbedded in pulp but masses separating easily into single sections; seeds irregularly angled, rough, 3/16 inches (.5 cm.) wide. Fruit not tuberculate, bearing areoles with numerous glochids and one or two short spines ½ inch (1 cm.) long. Flower scission with circular elevations, central depression containing a broad conical center. Flowers lemon-yellow, 3 inches (7 cm.) in diameter, remaining open two or three days; style, stigma, and stamens pale yellow.

The Stapelieae

4. Caralluma

(Continued)

By ALAIN WHITE *and* BOYD L. SLOANE

The outer corona is much more variable. The lobes are generally intergrown, forming a little bowl, more or less scalloped on the upper edge. This bowl is sometimes flattened out almost to a disk or plate, while at other times it is much deeper, like a cup or glass. In other instances the lobes are somewhat cleft, and there is a type where they form little separate pouches, quite distinct, but still intergrown at the base.

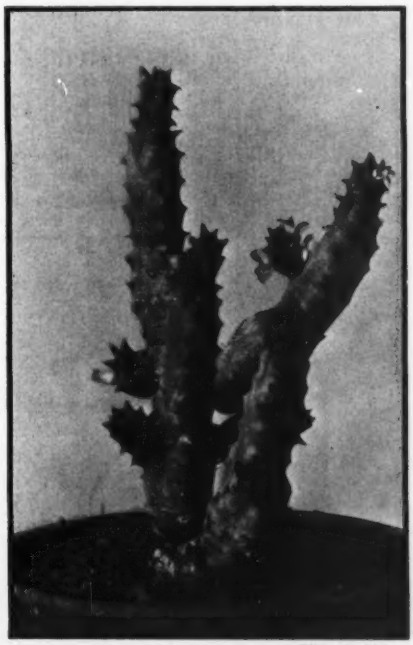


Photo by Havens

Fig. 12: *Caralluma ausana* × .5

In all these cases the outer corona is also more or less intergrown with the under side of the lobes of the inner corona. There is a final form in which all this intergrowth of the two coronas and their several lobes disappears, and the outer corona lobes are quite free after the manner of the genus *Stapelia.* This last type is approached in *Caralluma leendertziae*, with its small clusters of intensely purple-black flowers. The outer corona lobes are still slightly intergrown at the base with the inner corona, but otherwise they are closely related to the *Stapelia* form. The species comes from the Transvaal and is named for its discoverer, who is now Mrs. Reno Leendertz Pott, co-author with J. Burtt Davy of a very complete Check-list of the Plants and Ferns of the Transvaal and Swaziland.

Photo by Boyd L. Sloane

Fig. 13: *Caralluma europaea* var. *typica* × .75

In *Caralluma europaea* the outer corona lobes are intergrown one with another in the shape of five small pouches or pockets set side by side. In its long range around the southern shores of the Mediterranean and into southern Spain, *C. europaea* is a variable species, the color and markings of the corolla taking on various modifications, though the corona structure remains fairly constant. In the type, shown in Fig. 13,

the color is a reddish-brown, marked only with a few yellow-green lines at the base of the lobes. In the variety *Simonis* Brgr. the flower is of a more purple shade, decidedly larger, with more distinct markings, and the corolla lobes turn back markedly. This variety is found much more frequently in American collections than the type.

The flowers of *Caralluma burchardii* have a general resemblance to those of *C. europaea,* but the outer corona is of the bowl type, and

Photo by James West

Fig. 14: *Caralluma europaea* var. *Simonis* × .4

the corolla is unmarked and is covered inside with white hairs as if with a fine snow.

Caralluma lutea has flower stems about an inch long, which all project in one direction so that, while the flowers all come out at the same time, they do not form a globular cluster, but rather an irregular group as shown in Fig. 16. The outer corona is bowl shaped, with the scalloped lobes somewhat cleft into five divisions. The corolla is a beautiful shade of canary yellow, set off by the vibratile brown-red hairs in the margins. It is a free blooming species, and travelers have commented on the wonderful effect it produces when seen in large masses, as in the Transvaal near Kimberley, where it grows profusely on any grassy knoll, sometimes covering several acres. The only drawback to the "yellow Caralluma" is its odour, which has been compared to that of stale fish, although that is perhaps flattering the plant.

Related to *C. lutea,* but with shorter and stockier stems and flowers very dark red-brown and quite hairless is *Caralluma nebrownii.* It is

Photo by Boyd L. Sloane

Fig. 15: *Caralluma burchardii* × .5

found in South West Africa and in the same country there is another species, the "false N. E. Brown's Caralluma", *C. pseudo-nebrownii* Dtr., which, as its name implies, is confusingly similar. The "true Brown" grows just within the tropic, the "false" mostly just south of it. The "true" has flowers of a uniformly dark color; the "false" adds markings of yellow. The "true" has its flowers in somewhat larger clus-

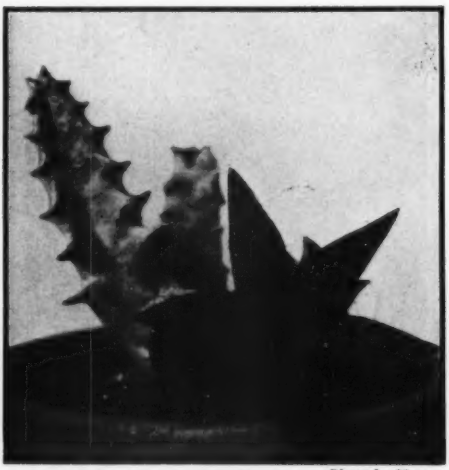


Photo by Havens

Fig. 17: *Caralluma nebrownii* × .5

ters; the "false" has its stems somewhat more regularly square-shaped in cross-section.

C. nebrownii was named by the two German authorities, Alwin Berger and Kurt Dinter, in honor of N. E. Brown, whose monumental

services on behalf of the STAPELIEAE we have already mentioned.

Mr. Brown joined the staff of the Royal Botanical Gardens at Kew in England on February 3, 1873. The STAPELIEAE were his first

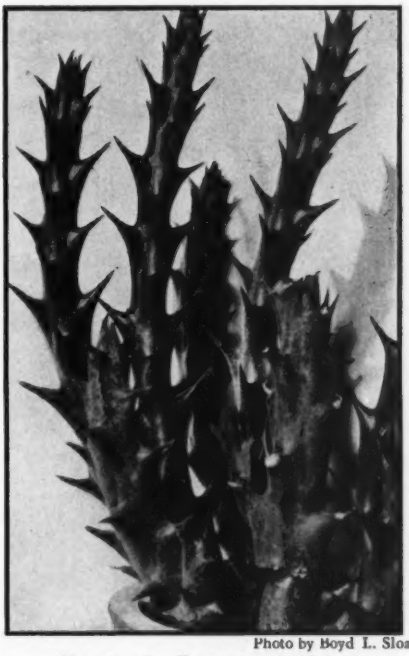


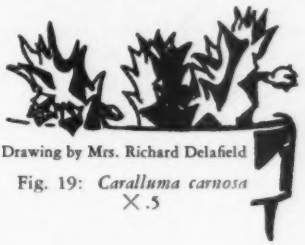
Photo by Boyd L. Sloane

Fig. 18: *Caralluma sprengeri* × .5

love and have remained a life-long hobby. When he took up his studies, the enthusiasms aroused during the lifetime of Haworth had subsided and interest in the STAPELIEAE as in other succulents was at a low ebb in England and in Europe generally. Gradually, however, the interest returned, and in its return Mr. Brown has played a constant part. We need only mention in passing his studies on the *Mesembryanthemums*.

The botanical gardens at Kew received a great impetus, in so far as South African plants were concerned, during the Governor-Generalship of Sir Henry Barkly at the Cape (1870-1877). While in South Africa, Sir Henry became greatly interested in the STAPELIEAE, which he collected at every opportunity and cultivated at the Government House in Cape Town. Lady Barkly and Miss E. B. Barkly made drawings of all the flowers, and these were sent to Kew with specimens of the living plants and others in alcohol. In 1890 N. E. Brown published an analysis of all this material under the name *Stapelieae barklyanae* in Hooker's *Icones Plantarum,* together with twenty-five illustrations. Later, as we know, Mr. Brown reviewed the entire family of the ASCLEPIADACEAE in so far as they are found in Tropical and Southern Africa, in the two Floras of 1904 and 1909, and his analysis of the STAPELIEAE in these works must always remain the starting point for future students of the tribe.

NOTE: The plants in Figs. 12 and 17 are from the collection of Mr. W. I. Beecroft, Escondido; that in Fig. 14 from the collection of Mr. James West, San Rafael; and that in Fig. 19 from the collection of Mrs. John Ross Delafield, Annandale, New York.



Drawing by Mrs. Richard Delafield

Fig. 19: *Caralluma carnosa* × .5

A FRIEND OF CACTI

Dr. Jacolyn Manning, Treasurer of the Society, is accomplishing wonderful results in her varied work on cacti. Seldom a week passes that some of her work does not gain local or national publicity. For example, the following notes are representative of success of her work:

1. G. Vande Weghe, of Ghent, Belgium, won a first, second, and fourth prize on Miniature Gardens inspired by Dr. Manning's article in the August JOURNAL.

2. One of the foremost librarians in the east is having demands for "The Law in Death Valley" and other stories of the desert which have been written by our Pasadena member.

3. The Garden Tours of Pasadena organizations list Dr. Manning's cactus garden as one of artistic and scientific value.

4. Conservation of desert life is one of her many undertakings and during the coming year the Cactus Society expects to have formulated a definite plan of work under her able guidance.

This constructive publicity will accomplish much for the cactus world and may we have more members who work tirelessly for the cause.

The JOURNAL and Society appreciates the work that Dr. Manning is doing in her resultful work with the propagation and disseminating of knowledge of desert plant life.

NORTHERN CALIFORNIA NOTES

Our December meeting promises to be one of the most interesting we have yet held. At the invitation of our member, Mr. Arthur C. Pillsbury, the noted lecturer and pioneer in the field of plant-cinematography, our members will be given a private view of his latest work on flowers of cacti and succulents at his home, 1147 Keith Avenue, Berkeley. They will at the same time have an opportunity to inspect Mr. Pillsbury's magnificent laboratory, where all the processes of making macroscopic, microscopic and X-ray lapse-time motion pictures are performed by a $35,000 array of marvelous automatic machinery, partly the invention of its owner.

No member will want to miss this opportunity. Every one should make a point of keeping the date, Friday, December 18, 8:00 P. M., open.

Mr. Eric Walther of San Francisco, lectured on "Succulents" before the Stockton Garden Club, November 25th. A surprisingly large and enthusiastic audience attended in spite of the unfavorable time and date.

Monstrosities in Mesembryanthema

By E. J. Labarre

All photos by Author.

It is not necessary to make an intensive study of teratology to be able to distinguish an abnormal growth in plants. There is scarcely a family of plants which have not, if closely observed and if grown in sufficiently varying conditions, produced "sports" or monstrosities in some part of the plant.

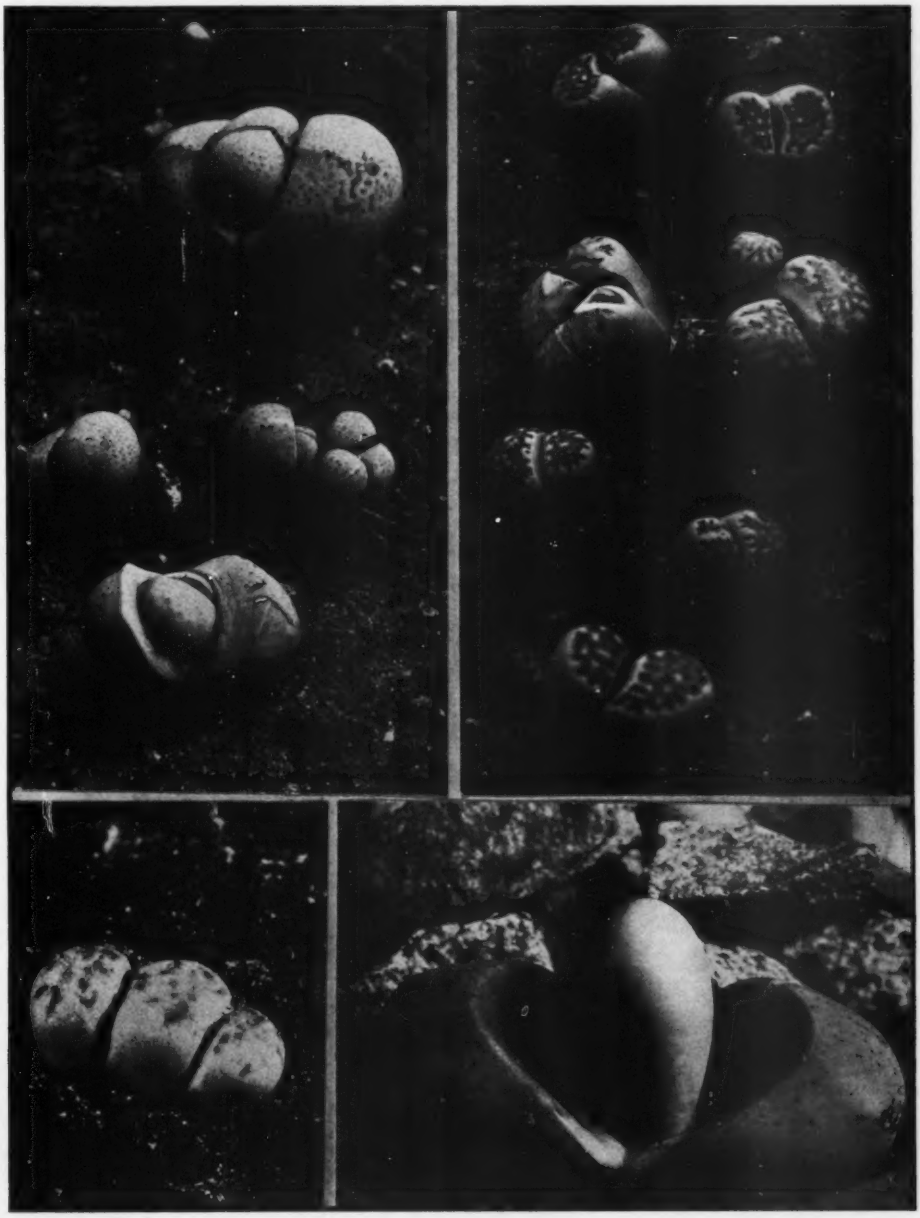
If monstrosities or abnormal growth in Mesembryanthema have not yet been recorded, it is undoubtedly due to the fact that the number of such plants grown outside their native conditions is very small and possibly that the possessors of these plants did their best to reproduce their natural conditions of cultivation.

Unfortunately or not, I have found among my mesembs a number of what I consider genuine monstrosities brought about, no doubt, by a too sudden change of conditions, such as soil and moisture. Three of the four plants illustrated here are in my opinion due to the excessive moisture, whereas the fourth (*Argyroderma testiculare*) may have been due to some injury to one of the young leaves.

It has been said that we must study the diseased individual to know how to treat the healthy one, the abnormal to know the normal. If this is true, then we may say that the more malformations or deviations from the normal we can observe among mesembs the more we shall know about the habits and requirements of the plants if we are to keep them in their normal and natural state, which is undoubtedly more interesting to amateurs living so far away from their habitat.

May I suggest that collectors should photograph monstrosities of mesembs whenever they occur so that the Cactus Journal will eventually possess a collection of such variations which may throw light on their reactions to unusual conditions. I may say that in my collection I am purposely treating several pans of the same plants in a different way (different soil and more or less sun and water) so as to be able to judge of the effects and thus determine the most favorable conditions.

Hilversum, Netherlands,
September, 1931.



UPPER LEFT—*Dinteranthus microspermus* (Dtr. & Dbg.) Schw.

UPPER RIGHT—*Lithops fulleri* N. E. Br.

LOWER LEFT—*Lithops karasmontana* (Dtr. & Schw.) N. E. Br.

LOWER RIGHT—*Argyroderma testiculare* (Ait.) N. E. Br.

IMPORTANT NOTE: Plant names are printed as received from the advertiser. The Journal does not change the spelling in any way.

By MARY NORWOOD LAWRENCE

376 N. Ave. 57, Los Angeles, Calif.

The Santa Rosa Flower Festival proved to be another Coast cactus triumph. Hundreds of cactus gardens in miniature made a gallant showing, and the Garden Development Section of the Santa Rosa Chamber of Commerce won the special award for its Spanish Garden true to detail—tiny cactus plants grown in the sandy yard, native pottery, and "atmosphere." The J. W. George collection of cacti and succulents from Petaluma attracted the greatest attention, Mr. George having recently developed into a cactus fancier.

» «

The Patcher is not able to give any details, but the president, Mrs. D. van der Bijl, notifies us that the first meeting of the South African Succulents Society (founded along lines similar to ours) has been held and the keenest interest shown in learning of and developing an interest in the plant life which is mostly succulenta and is the native flora.

In this connection, Miss M. C. Karsten, of the Holland Cactus Society will make a trip to South Africa early in the year to study the flora of that region. As will be remembered, Miss Karsten is one of three authors of a volume on mesembryanthemums about to be published.

» «

Captain and Mrs. Davidson of San Francisco have been making a leisurely tour along the Coast, visiting cactus gardens galore. Mrs. Davidson won several ribbons at the recent Show in the Bay District, her especial interest being Semperviva. The Captain, however, was more thrilled over the changes in our Harbor facilities in the thirty years since he was in the Coastwise Shipping Trade, where, having brought coal down from the Nanaimo fields he was obliged to stand out three miles and transfer his cargo to small boats in order to dock.

» «

An interesting article about the cactus collection of Mr. William A. Clark, New Orleans, Louisiana, appeared in a recent copy of the "New Orleans States". Mr. Clark has over 300 varieties of cacti in his garden. He has been most successful in growing plants in pots, and is especially interested in grafting. He built his own hot house, in which are many rare and beautiful plants.

» «

ADVERTISERS' COOPERATION

The classified advertising has enjoyed very favorable comment. More space has been available for articles and the results to advertisers have been very gratifying. Such cooperation between advertiser and reader makes possible a better looking JOURNAL and in a more compact form. Please mention the JOURNAL when writing to its advertisers.